Amendments to the Claims

Please cancel non-elected Claims 4, 6, 11, 15, 19, 21, 26, 30, 34 and 38-49 without prejudice to their prosecution in a continuation or divisional application. Please amend Claims 1, 5, 7, 8, 12, 16, 20, 22, 23, 27, 31 and 35. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing:

1. (currently amended) A packaging cell line comprising:
   a) a mammalian cell;
   b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a HIV *gagpol* ~~but not~~ and lacks coding sequences for HIV accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;
   c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein; and
   d) a third retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration, wherein said packaging cell line produces a HIV-derived retroviral vector particle.

2. (original) A packaging cell line of Claim 1 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).

3. (original) A packaging cell line of Claim 1 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

4. (canceled)

5. (currently amended) A packaging cell line comprising:

a) a mammalian cell;

b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a HIV *gagpol* ~~but not~~ and lacks coding sequences for HIV accessory proteins, Rev response ~~element or~~ element and constitutive transport elements; and

c) a second retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration.

6. (canceled)

7. (currently amended) A packaging cell line comprising:

a) a mammalian cell;

b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a HIV *gagpol* ~~but not~~ and lacks coding sequences for HIV accessory proteins, Rev response ~~element or~~ element and constitutive transport elements; and

c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein.

8. (currently amended) A method of producing a packaging cell line which produces a HIV-derived retroviral vector particle, comprising co-transfecting mammalian host cells with:

a) a first plasmid comprising a codon optimized DNA sequence which encodes HIV *gagpol* proteins ~~but not~~ and lacks DNA sequences encoding HIV accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;

b) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and

c) a third plasmid comprising a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration, thereby producing a packaging cell line which produces a HIV-derived retroviral vector particle.

9. (original) A method of Claim 8 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).

10. (original) A method of Claim 8 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

11. (canceled)

12. (currently amended) A method of producing a HIV-derived retroviral vector particle comprising the steps of:

a) co-transfecting mammalian host cells with:

i) a first plasmid comprising a codon optimized DNA sequence which encodes HIV *gagpol* proteins ~~but not~~ and lacks DNA sequences encoding HIV accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;

ii) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and

iii) a third plasmid comprising a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration,

b) maintaining the transfected cells under conditions suitable for virus particle production; and

c) recovering virus particle produced in step b).

13. (original) A method of Claim 12 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).

14. (original) A method of Claim 12 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

15. (canceled)

16. (currently amended) A packaging cell line comprising:

a) a mammalian cell;

b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for a lentivirus *gagpol* ~~but not~~ and lacks coding sequences for lentivirus accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;

c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein; and

d) a third retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration,

wherein said packaging cell line produces a lentivirus-derived retroviral vector particle.

17. (original) A packaging cell line of Claim 16 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).

18. (original) A packaging cell line of Claim 16 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

19. (canceled)

20. (currently amended) A packaging cell line comprising:

a) a mammalian cell;

b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for lentivirus *gagpol* ~~but not~~ and lacks coding sequences for lentivirus accessory proteins, Rev response ~~element or~~ element and constitutive transport elements; and

c) a second retroviral nucleotide sequence in the cell which comprises a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration.

21. (canceled)

22. (currently amended) A packaging cell line comprising:

a) a mammalian cell;

b) a first retroviral nucleotide sequence in the cell which comprises a codon optimized coding sequence for lentivirus *gagpol* ~~but not~~ and lacks coding sequences for lentivirus accessory proteins, Rev response ~~element or~~ element and constitutive transport elements; and

c) a second retroviral nucleotide sequence in the cell which comprises the coding sequence for a heterologous envelope protein.

23. (currently amended) A method of producing a packaging cell line which produces a lentivirus-derived retroviral vector particle, comprising co-transfecting mammalian host cells with:

a) a first plasmid comprising a codon optimized DNA sequence which encodes lentivirus *gagpol* proteins ~~but not~~ and lacks DNA sequences encoding lentivirus accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;

b) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and

c) a third plasmid comprising a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration, thereby producing a packaging cell line which produces a lentivirus-derived retroviral vector particle.

24. (original) A method of Claim 23 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).

25. (original) A method of Claim 23 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

26. (canceled)

27. (currently amended) A method of producing a lentivirus-derived retroviral vector particle comprising the steps of:

a) co-transfecting mammalian host cells with:

i) a first plasmid comprising a codon optimized DNA sequence which encodes lentivirus *gagpol* proteins ~~but not~~ and lacks DNA sequences encoding lentivirus accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;

ii) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and

iii) a third plasmid comprising a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration.

b) maintaining the transfected cells under conditions suitable for virus particle production; and

c) recovering virus particle produced in step b).

28. (original) A method of Claim 27 wherein the heterologous envelope protein is the G glycoprotein of vesicular stomatitis virus (VSV G).

29. (original) A method of Claim 27 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

30. (canceled)

31. (currently amended) A HIV-derived retroviral vector particle having no viral accessory proteins produced by the method comprising the steps of:

a) co-transfecting mammalian host cells with:

i) a first plasmid comprising a codon optimized DNA sequence which encodes HIV *gagpol* proteins ~~but not~~ and lacks DNA sequences encoding HIV accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;

ii) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and

iii) a third plasmid comprising a DNA sequence of interest and HIV cis-acting sequences required for packaging, reverse transcription and integration; and

b) maintaining the transfected cells under conditions suitable for virus particle production.

32. (previously presented) A HIV-derived retroviral vector particle of Claim 31 wherein the heterologous envelope protein is the G glycoprotein of vesticular stomatitis virus (VSV G).

33. (previously presented) A HIV-derived retroviral vector particle of Claim 31 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

34. (canceled)

35. (currently amended) A lentivirus-derived retroviral vector particle having no viral accessory proteins, produced by the method comprising the steps of:

a) co-transfecting mammalian host cells with:

i) a first plasmid comprising a codon optimized DNA sequence which encodes lentivirus *gagpol* proteins ~~but not~~ and lacks DNA sequences encoding lentivirus accessory proteins, Rev response ~~element or~~ element and constitutive transport elements;

ii) a second plasmid comprising a DNA sequence which encodes a heterologous envelope protein; and

iii) a third plasmid comprising a DNA sequence of interest and lentivirus cis-acting sequences required for packaging, reverse transcription and integration; and

b) maintaining the transfected cells under conditions suitable for virus particle production.

36. (previously presented) A lentivirus-derived retroviral vector particle of Claim 35 wherein the heterologous envelope protein is the G glycoprotein of vesticular stomatitis virus (VSV G).

37. (previously presented) A lentivirus-derived retroviral vector particle of Claim 35 wherein the heterologous envelope protein is the amphotropic envelope of the Moloney leukemia virus.

38-49. (canceled)